We claim:

1. A folding ladder configured for installation in an opening to provide access between one floor or space and another floor or space, comprising:

an upper ladder section comprising a left ladder rail and a right ladder rail;

a lower ladder section comprising a left ladder rail and a right ladder rail;

a hinge rotatably connecting the upper ladder section left ladder rail to the lower ladder section left ladder rail and rotatably connecting the upper ladder section right ladder rail to the lower ladder section right ladder rail;

a plurality of steps rotatably disposed between the upper pair of ladder rails and the lower pair of ladder rails, the plurality of steps configured for rotation between a retracted position and a deployed position.

2. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 1, wherein said hinge is a locking hinge configured to lock in at least one position including a fully deployed position of the foldable ladder.

3. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 1, wherein said hinge is configured to provide increased resistance to opening or closing at at least one angle along an arc traveled by the ladder including a fully deployed position of the foldable ladder.

4. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 1, wherein in said retracted position the steps are positioned so that a front edge of the steps do not extend appreciably beyond a front edge of said ladder rails and a rear edge of the steps do not extend appreciably beyond a rear edge of said ladder rails.

5. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 4, wherein in said deployed position the steps are positioned in a substantially horizontal position.

6. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 5, further comprising, a step rail joining a front portion of one step with a front portion of at least one additional step, the step rail permitting ganged movement of the steps connected thereto.

7. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 6, wherein said step rail comprises an upper step rail and a lower step rail rotatably connected to one another by a joint, and wherein the steps connected to the step rail comprise at least one step from the upper ladder section and at least one step from the lower ladder section.

8. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 6, wherein at least one

of said step rail and said front portion of said one step is connected to one end of a slotted link member, and wherein at least one of said ladder rail sections comprises a pin about which another end of said slotted link member is laterally secured, the link member being rotatable and translatable about said pin.

9. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 8, wherein said slotted link member is configured to permit rotation of said steps from said retracted position to said deployed position, wherein in said retracted position said slotted link member and said step rail are positioned so that front edges of the slotted link member and step rail do not extend appreciably beyond a front edge of said ladder rails and rear edges of the slotted link member and said step rail do not extend appreciably beyond a rear edge of said ladder rails, and wherein in said deployed position, said pin abuts against an upper end portion of a slot in said slotted link member to prevent further rotation of said steps.

10. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 9, further comprising an automatic step positioning system configured to rotate at least one step in correspondence to a rotational motion of one ladder section relative to another ladder section.

11. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 10, wherein said automatic step positioning system comprises a linkage member attached to a hinge shaft, said

linkage member connected directly or through a second linkage member to the step rail, and wherein said automatic step positioning system is adapted to produce an angular step rotation of at least one step in response to the rotation of one ladder section relative to another ladder section.

12. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 10, wherein said automatic step positioning system comprises a hinge shaft gear attached to a hinge shaft and a step gear attached to a step bar of at least one step, said hinge shaft gear connected to a rack provided on an inside of a ladder rail, said rack cooperatively translating upwardly or downwardly along an inside of said ladder rail upon an angular displacement of said hinge shaft gear, said translation of said rack imparting a rotation to said step gear to produce an angular step rotation of said step in response to the rotation of said hinge shaft gear caused by rotation of one ladder section relative to another ladder section.

13. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 5, further comprising, a left step rail joining a front left portion of one step with a front left portion of at least one additional step and a right step rail joining a front right portion of one step with a front right portion of at least one additional step, the left and right step rails permitting ganged movement of the steps connected thereto.

14. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 13, wherein said left and right step rails each comprise an upper step rail portion and a lower step rail portion rotatably connected to one another by a joint, and wherein the steps connected to the left and right step rail portions comprise at least one step from the upper ladder section and at least one step from the lower ladder section.

15. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 13, wherein at least one of said left step rail and said left front portion of said one step is connected to one end of a left slotted link member, wherein at least one of said right step rail and said right front portion of said one step is connected to one end of a right slotted link member, wherein at least one of said left and right ladder rail sections each comprises a pin about which another end of a respective one of said left and right slotted link members is laterally secured, each of the left and right slotted link members being rotatable and translatable about said pin.

16. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 15, wherein said left and right slotted link members are configured to permit rotation of said steps from said retracted position to said deployed position, wherein in said retracted position said left and right slotted link members and said left and right step rails are positioned so that front edges of the respective slotted link members and left and right step rails do not extend appreciably beyond a front edge of said ladder rails and rear edges of the left and right slotted link members and left and right

step rails do not extend appreciably beyond a rear edge of said ladder rails, and wherein in said deployed position, the pins abut against an upper end portion of a slot in each of the left and right slotted link members to prevent further rotation of said steps.

17. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 16, further comprising an automatic step positioning system configured to rotate at least one step in correspondence to a rotational motion of one ladder section relative to another ladder section.

18. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 17, wherein said automatic step positioning system comprises a linkage member attached to at least one of a left and right hinge shaft, said linkage member connected directly or through a second linkage member to a respective one of the left or right step rails, and wherein said automatic step positioning system is adapted to produce an angular step rotation of at least one step in response to the rotation of one ladder section relative to another ladder section.

19. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 17, wherein said automatic step positioning system comprises a hinge shaft gear attached to at least one of a left and right hinge shaft and a step gear attached to a step bar of at least one step, said hinge shaft gear connected to a rack provided on an inside of a respective one of a left and a right ladder rail, said rack cooperatively translating upwardly or downwardly along an inside of said respective

ladder rail upon an angular displacement of said hinge shaft gear, said translation of said rack imparting a rotation to said step gear to produce an angular step rotation of said step in response to the rotation of said hinge shaft gear caused by rotation of one ladder section relative to another ladder section.

20. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 5, further comprising an adjustable foot provided at one of a bottom portion of a lowermost ladder section's left ladder rail and right ladder rail, said adjustable foot configured to pivot about at least one axis of rotation.

21. A foldable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 20, wherein said adjustable foot is configured to translate along a track provided along an inside of the ladder rails along a longitudinal axis of the ladder rails.

22. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space, comprising:

an upper ladder section comprising a left ladder rail and a right ladder rail having at least one step disposed therebetween;

a lower ladder section comprising a left ladder rail and a right ladder rail having at least one step disposed therebetween configured to translate and rotate with respect to the upper ladder section into a deployed position substantially co-linear with the upper ladder section;

wherein at least one of said steps is rotatably disposed and is configured for rotation between a retracted position and a deployed position.

23. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 22, wherein said at least one step being rotatably disposed is provided between the upper left ladder rail and the upper right ladder rail.

24. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 22, wherein said at least one step being rotatably disposed is provided between the lower left ladder rail and the lower right ladder rail.

25. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 22, comprising a plurality of rotatably disposed steps provided between each of said upper left ladder rail and said upper right ladder rail.

26. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 22, comprising a plurality of rotatably disposed steps provided between each of said lower left ladder rail and said lower right ladder rail.

27. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 22, further comprising a hinge rotatably connecting the upper ladder section left ladder rail to the lower ladder section left ladder rail and rotatably connecting the upper ladder section right ladder rail to the lower ladder section right ladder rail.

28. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 27, wherein said hinge is a locking hinge configured to lock in at least one position including a fully deployed position of the stowable ladder.

29. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 22, wherein in said deployed position the steps are positioned in a substantially horizontal position.

30. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 22, wherein said lower ladder section is disposed to translate with respect to said upper ladder section.

31. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 30, wherein the lower left ladder rail is configured to slide within the upper left ladder rail and the lower right ladder rail is configured to slide within the upper right ladder rail.

32. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 30, wherein the lower left ladder rail is configured to slide in a track disposed on an outer surface of the upper left ladder rail and the lower right ladder rail is configured to slide in a track disposed on an outer surface of the upper right ladder rail.

33. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 31, further comprising:

an additional ladder section connected to a bottom portion of said lower ladder section,

wherein said additional ladder section is configured to at least one of translate and rotate with respect to the lower ladder section into a deployed position substantially co-linear with the lower ladder section.

34. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 33, wherein said at least one step is rotatably disposed between the left ladder rail and the right ladder rail.

35. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 22, wherein each of said upper ladder section said lower ladder section substantially comprise a material selected from the group consisting of a metal, a metal alloy, a thermosetting resin, a thermoplastic resin, and a composite.

36. A stowable ladder configured for installation in an opening to provide access between one floor or space and another floor or space according to claim 33, wherein each of said upper ladder section, said lower ladder section, and said additional ladder section substantially comprise a material selected from the group consisting of a metal, a metal alloy, a thermosetting resin, a thermoplastic resin, and a composite.